THE PENNY MAGAZINE

OF THE

Society for the Diffusion of Useful Knowledge.

[Sir Roger de Coverley and the 'Spectator.']

SIR ROGER DE COVERLEY.—No. I.

It is pleasant to reflect upon the imperishable quality of many of those things, apparently trifling, which have the power of contributing to innocent enjoyment. The sports of childhood are essentially ancient. The top and the hoop have outlived many generations. There is a famous picture by Lionardo da Vinci, in which a boy is playing with the pretty toy in which a number of flat boards are fastened by tapes—at once dissevered and united; and the toy is still sold for a halfpenny at the corner of every street. To ascend in the scale of enjoyment, the melody which was delightful in the days of Queen Elizabeth is forgotten, perhaps, for two hundred years, and it suddenly springs into popularity in the days of Queen Victoria. For a quarter of a century country-dances were out of fashion. They are reviving; and with them comes back one of the oldest and most beautiful, with its courteous advances, from the extremities of a long line, of the lady and the gentleman,—their turnings in the centre,—their returnings,—the chain figure in which the lady winds through a line of gentlemen, and the gentleman through a line of ladies—and lastly, the arched hands under which every couple passes. This is Roger de Coverley, or Roger of Cowley. Cowley is a pretty village about two miles from Oxford; and here some one lived in the days of the Tudors who was famous enough to have his name linked with the pretty dance-tune that has once again become fashionable. But he had a higher honour. The popularity of the dance in the days of Queen Anne gave a name to the most famous character in 'The Spectator;' and ever afterwards the dance itself gathered an accession of dignity even in its name; and plain Roger of Cowley became *Sir* Roger *de* Coverley.

The revival of the dance is propitious to our attempt to revive, for the general reader, those delightful papers of Addison and Steele which are devoted to the fictitious character of Sir Roger. Few people now read 'The Spectator' as a whole. Some of the more celebrated essays, such as 'The Vision of Mirza,' find their place in books of extract. The delicate humour of the delineation of Sir Roger de Coverley is always referred to as the highest effort of Addison's peculiar genius; but not many will take the pains to select

these sixteen or seventeen papers from the six hundred and thirty which form the entire work. These papers have a completeness about them which show how thoroughly they were written upon a settled plan. Steele appears to have first conceived the character in the second number of 'The Spectator;' but Addison very soon took it out of his friend's hands, who was scarcely able to carry on the portraiture with that refinement which belonged to Addison's conception of the character. Addison, it is said, killed Sir Roger in the fear that another hand would spoil him.

As a representation of manners a century and a half ago, the picture of Sir Roger de Coverley has a remarkable value. The good knight is thoroughly English; and in him we see a beautiful specimen of the old-fashioned gentleman, with a high soul of honour, real benevolence, acute sense, mixed up with the eccentricities which belong to a nation of humourists. The readers of 'The Spectator' are fast diminishing. No one now gives "his days and nights to the volumes of Addison;" but his gentle graceful humour has never been excelled, and nowhere is it more conspicuous than in the papers of which Sir Roger de Coverley is the hero.

The plan of 'The Spectator' is founded upon the fiction of a club that assembles every Tuesday and Thursday to carry on the publication. Sir Roger does not appear highly qualified for a literary colleague—a *collaborateur*, as the French style it,—but he nevertheless is the foremost in 'The Spectator's' "account of those gentlemen who are concerned with me in the work."

"The first of our society is a gentleman of Worcestershire, of an ancient descent, a baronet, his name Sir Roger de Coverley. His great-grandfather was inventor of that famous country-dance which is called after him. All who know that shire are very well acquainted with the parts and merits of Sir Roger. He is a gentleman that is very singular in his behaviour, but his singularities proceed from his good sense, and are contradictions to the manners of the world, only as he thinks the world is in the wrong. However, this humour creates him no enemies, for he does nothing with sourness or obstinacy, and his being unconfined to modes and forms makes him but the readier and more capable to please and oblige all who know him. When he is in town he lives in Soho Square. It is said he keeps himself a bachelor by reason he was crossed in love by a perverse beautiful widow of the next county to him. Before this disappointment, Sir Roger was what you call a fine gentleman, had often supped with my Lord Rochester and Sir George Etherege, fought a duel upon his first coming to town, and kicked bully Dawson in a public coffee-house for calling him youngster: but being ill used by the above-mentioned widow, he was very serious for a year and a half; and though, his temper being naturally jovial, he at last got over it, he grew careless of himself, and never dressed afterward. He continues to wear a coat and doublet of the same cut that were in fashion at the time of his repulse, which, in his merry humours, he tells us has been in and out twelve times since he first wore it. He is now in his fifty-sixth year, cheerful, gay, and hearty; keeps a good house both in town and country; a great lover of mankind; but there is such a mirthful cast in his behaviour, that he is rather beloved than esteemed.

"His tenants grow rich, his servants look satisfied, all the young women profess love to him, and the young men are glad of his company. When he comes into a house he calls the servants by their names, and talks all the way up stairs to a visit. I must not omit that Sir Roger is a justice of the quorum, that he fills the chair at a quarter-session with great abilities, and three months ago gained universal applause by explaining a passage in the Game Act."

We hear little of Sir Roger, except an occasional opinion, till we reach the 106th number, when Addison takes up the man of whom he said "we are born for each other."

"Having often received an invitation from my friend Sir Roger de Coverley, to pass away a month with him in the country, I last week accompanied him thither, and am settled with him for some time at his country-house, where I intend to form several of my ensuing speculations. Sir Roger, who is very well acquainted with my humour, lets me rise and go to bed when I please, dine at his own table or in my chamber, as I think fit, sit still and say nothing without bidding me be merry. When the gentlemen of the country come to see him, he shows me at a distance. As I have been walking in his fields I have observed them stealing a sight of me over a hedge, and have heard the knight desiring them not to let me see them, for that I hated to be stared at.

"I am the more at ease in Sir Roger's family, because it consists of sober, staid persons; for as the knight is the best master in the world, he seldom changes his servants; and as he is beloved by all about him, his servants never care for leaving him: by this means his domestics are all in years, and grown old with their master. You would take his valet-de-chambre for his brother; his butler is grey-headed, his groom is one of the gravest men that I have ever seen, and his coachman has the looks of a privy-councillor. You see the goodness of the master even in his old house-dog, and in a grey pad that is kept in the stable with great care and tenderness, out of regard to his past services, though he has been useless for several years.

"I could not but observe with a great deal of pleasure the joy that appeared in the countenances of these ancient domestics upon my friend's arrival at his country-seat. Some of them could not refrain from tears at the sight of their old master; every one of them pressed forward to do something for him, and seemed discouraged if they were not employed. At the same time the good old knight, with a mixture of the father and the master of the family, tempered the inquiries after his own affairs with several kind questions relating to themselves. This humanity and goodnature engages everybody to him, so that when he is pleasant upon any of them, all his family are in good humour, and none so much as the person whom he diverts himself with: on the contrary, if he coughs, or betrays any infirmity of old age, it is easy for a stander-by to observe a secret concern in the looks of all his servants.

"My worthy friend has put me under the particular care of his butler, who is a very prudent man, and, as well as the rest of his fellow-servants, wonderfully desirous of pleasing me, because they have often heard their master talk of me as of his particular friend."

Such is the general outline of the character and position of Sir Roger de Coverley. In succeeding numbers we shall present his minuter features.

PORTABLE DIORAMA.—DISSOLVING VIEWS.

IN a former number we gave an outline of the principles on which chiefly depend the effects produced at the Colosseum, the Cosmorama, the Panorama, the Diorama, and other similar exhibitions. Since then we have met with a suggestion by a Mr. Tait of Edinburgh, for the construction of a portable Diorama, which seems worthy of a few further observations.

Mr. Tait communicated to the Society of Arts of Scotland a description of a small apparatus by which the nature and effects of the diorama could be exhibited in an instructing manner. But to understand this, it is necessary to advert to Daguerre's account of

the mode of painting dioramic pictures, as divulged by him to the French government. A dioramic picture is painted on both sides. It is a large piece of lawn or calico, if possible without a seam, or at least with seams as little perceptible as may be necessary. The colours laid on the *front* of the picture are viewed by reflected light coming from a point above and between the spectator and the picture; while those laid on the *back* of the picture are viewed by transmitted light, emanating from a window behind. In painting the front, the 'lights,' or white tints, are left out, so as to admit the passage of light through the picture from behind: and even in the dark parts no body-colours are used; for though they would show well by reflected light, they would appear as mere black irregular masses by transmitted light. While painting the front, the painter works by reflected light; but while painting the back, by transmitted light; because the effects intended to be produced can only thus be tested.

Generally speaking, when a dioramic scene is represented by day, and then by evening or moonlight, the day effect is painted on the front of the picture, and the night effect on the back; and the admission of light is regulated according as the picture is to be viewed by reflected or transmitted light; in other words, according as it is to be a *picture* or a *transparency*. But in other cases a subject more or less different from the first is represented on the back, by which many of those startling effects have been produced which are so familiar to the visitors at the exhibition in the Regent's Park. The exhibition-room, be it large or small, is provided with shutters, by which the amount of light to be admitted can always be regulated, from broad daylight to total exclusion. If *fog* is to be represented, as it has been in many exhibited dioramas, the picture is placed at a greater or less distance behind a transparent screen; the greater the distance, the more dim and foggy will the scene necessarily appear.

All these arrangements, in order to produce the desired effect to the eye of a spectator, must be so managed that the picture may be at a distance from the eye, in a kind of room or recess; and it is probable that this circumstance led Mr. Tait to the suggestion of a portable diorama. The machine may be a small oblong box, of any dimensions, to be viewed at one end. Small stretching-frames are prepared, over which pieces of transparent paper or linen are stretched to form the pictures. Any one of these, when painted and about to be used, is inserted in a groove in the interior of the box, at a distance equal to two-thirds of the length of the box from the end at which the eye is applied. The eye-hole is not simply a circular or square hole cut in the end of the box, but is a small tube two or three inches in length, placed opposite the 'point of sight' in the picture. The tube projects a little from the box, in order to assist the adjustment of the eye; and the inner end is expanded sufficiently to expose to view the whole of the picture in the box.

As a means of admitting light to act upon both sides of the picture at pleasure, two hinged covers are used, one at the top of the box, and the other at the end remote from the eye. Each cover, by a small pulley and balance weight, or any similar contrivance, is made to remain stationary in any required position. When the top cover is closed and the end one open, light falls on the back, but not on the front of the picture, and a person applying his eye at the tube would see the picture only by transmitted light. When the top cover is open and the ends are closed, the reverse of that occurs, and a spectator views the picture by reflected light. When any medium-arrangement is adopted, such as one cover being open and the other partially closed, one closed and the other partially closed, or both partially closed, numerous variations of light and shade and tint in the picture are observed. Passing gleams of sunshine, day melting into night, and this into moonlight—and all similar changes, may be imitated with some approach to completeness.

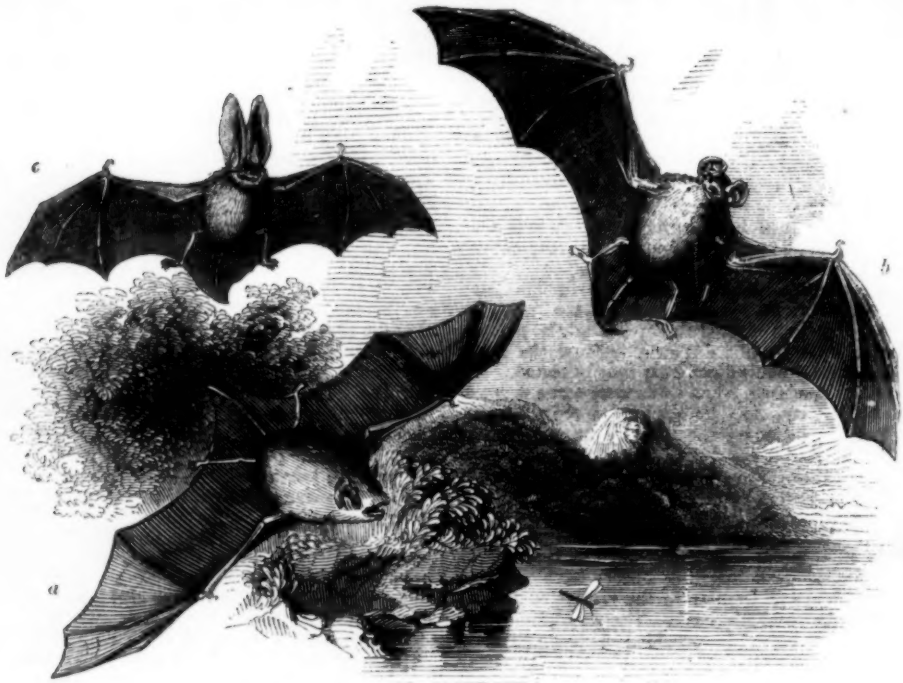
The inside of the eye-tube, and everything which could distract the eye from the picture, is painted black; while the inner surfaces of the covers which may aid in reflecting light upon the picture are painted white. Screens of fine tissue-paper, Persian silk, or some other thin substance, are placed across the openings when the covers are raised, if a subdued light be required; and remarkable modifications of the effect may be produced by having these media coloured. The pictures may be viewed by the naked eye through the tube, or a lens might be employed to alter the effect.

It is not difficult to see that such a contrivance is an exact copy of the large diorama, in all its essential features. The construction of the box is a matter involving no great mechanical difficulties. The painting of the pictures is the feature which calls for most talent; for here attention must be paid to the different character or tone which reflected light and transmitted light throw over a picture, to the degree of opacity or transparency which different pigments will present, to the hues which natural scenery exhibits at different hours of the day, and to the character of the shadows produced by objects. The more carefully these matters are attended to, the better will be the miniature diorama.

There has been, within the last year or two, a kind of pictorial exhibition in London, called "Dissolving Views.' These views are examples of a superior kind of phantasmagoric exhibition, or "magic-lantern," in which striking effects are produced by simple but very ingenious means.

The phenomenon of a "dissolving" view consists in the adjustment of *two* views, or two lantern slides, in such a manner that one shall gradually disappear while the other comes in sight, the images of both occupying the same spot on the screen or wall. It is said that a German named Philipsthal, who introduced the phantasmagoria about sixty years ago, also gave the first rough idea of the "dissolving" views. He was in the habit of representing, among other subjects, the raising of the ghost of Samuel by the Witch of Endor, in which he made the phantom appear to rise from the ground; but he conceived that if he employed two lanterns and slides, making the wick of one rise while he lowered that of the other, and directing both images to one spot, a more aërial and supernatural effect might be produced. This method succeeded, and Philipsthal was led to the adoption of similar arrangements for representing landscape scenery.

The improvements which have been made within the last few years have brought this plan to a point of great excellence. Two sliders or painted glasses are used, illuminated by one intense jet, having their devices represented on a screen, the focalization to one spot being effected by optical means. While one picture is being exhibited, the other is hidden by a cover or shutter; and the effect of "dissolving," which is very remarkable, is produced by the gradual and simultaneous closing of one picture and opening of another. If, while one picture is being exhibited, the other is being changed for a third, and if while this third picture is under exhibition the second be ex changed for a fourth, and so on, an extensive series may be exhibited, each one apparently melting or dissolving into the succeeding one. This, like many other contrivances, appears simple enough when known; but the simplicity does not detract from the merit of the artists who contrived the arrangement.



[*a*, Common Bat (Vespertilio pipistrellus); *b*, Great Bat (V. noctula); *c*, Long-eared Bat (V. auritus).]

CURIOSITIES OF BRITISH NATURAL HISTORY.

BATS.

It may surprise some of our readers to be informed that sixteen or seventeen distinct species of bats are natives of the British Islands. Of these, however, several are extremely rare, and restricted to certain localities; but some, as the Pipistrelle, or common bat, and the long-eared bat (*Vespertilio auritus*), are everywhere abundant; nor is the great bat (*V. Noctula*) of unfrequent occurrence.

Of all the mammalia the bats alone emulate in their aërial endowments the feathered tenants of the sky; they are essentially flying insectivora. In the air they pass the active periods of their existence, and revel in the exercise of their faculties. Their organs of flight, admirably adapted for their destined purpose, do not consist, as in the bird, of stiff feathers based upon the bones of the fore-arm, but of a membranous expansion stretched over and between the limbs, and to which the bones of the limbs, especially those of the elongated fingers, serve the same purpose as the strips of whalebone in an umbrella. This apparatus can be folded up, and the limbs employed in progression on the ground; on a level surface, however, the bat shuffles awkwardly but quickly along. In the hollows of decayed trees, in the crevices of mouldering masonry, or in rough chinks and fissures, it can crawl and climb about with tolerable rapidity, as also about the wirework of a cage, a circumstance we have often witnessed. It is a smooth and level surface that most embarrasses the bat, but even then it can easily take wing. In the air the bat is all alertness,—it is here that these singular creatures pursue their insect prey—uttering their short sharp cry as they wheel in circling flights, or perform their abrupt and zigzag evolutions. Bats, says White, "drink on the wing like swallows, by sipping the surface as they play over pools and streams. They love to frequent waters, not only for the sake of drinking, but also on account of the insects, which are found over them in the greatest plenty." Often during a warm summer evening have we seen numbers, perhaps several scores, of the common bat (*V. Pipistrellus*) flitting over pools, in chase of gnats and similar insects, or gambolling with each other in a mazy dance, ever and anon uttering sharp shrill cries of exultation and delight; an interesting spectacle to such as love to "trace the woods and lawns and living stream at eve."

The bat is a twilight and nocturnal rambler: it passes the day in its retreat suspended head downwards, clinging to any roughness or projection by the claws of its hinder feet. In this position it hybernates in a state of lethargy; numbers congregating together. Church steeples, hollow trees, old barns, caverns, and similar retreats are its lurking-places; and vast numbers are often found crowded closely together and forming a compact mass. Pennant states that on one occasion, as he was informed by the Rev. Dr. Backhouse, one hundred and eighty-five were taken from under the eaves of Queen's College, Cambridge, and on the next night sixty-three more; all in a torpid condition. They were all of one species, viz., the Noctule, or great bat (*V. Noctula*), the largest of our British bats, measuring fourteen or fifteen inches in the extent of the wings. The great horse-shoe bat haunts the deepest recesses of caverns, where no rays of light can enter. It is found in the caverns at Clifton, and in Kent's Hole near Torquay, a dark and gloomy cavern, where the lesser horse-shoe bat also takes up its abode.

It has been suspected that some of our British bats may possibly migrate, and pass the winter, like the swallow, in some genial region where their insect prey is abundant. For this supposition there is not the slightest foundation: all our bats hybernate; but the period at which they become torpid in their retreats,

and revive to visit again "the glimpses of the moon," differs in the different species. The Pipistrelle, or common British bat, is the soonest roused from its lethargic trance. It usually appears in March, and does not retire until the winter has decidedly set in, and its insect food has disappeared. Yet during the winter it will often rouse up and flit about, and that too during the middle of the day, as we have ourselves often witnessed. We have seen it abroad in November and December, though the weather was cold, and a friend shot one of these bats just before Christmas in the middle of the day, which, though the temperature was near or at the freezing-point, was clear and bright. The Noctule appears at the latter end of April, and seeks its winter dormitory in August. The long-eared bat (*Plecotus auritus*) is active in the early part of October.

The various species of our bats differ more or less distinctly from each other in the style and character of their flight. The Pipistrelle flits quickly, making abrupt and zigzag turns, and often skims near the ground; the Noctule, which was first noticed as an English bat by White, sweeps high in the air on powerful wings, whence he termed it *altivolans*. On one occasion we saw three or four of this species wheeling round a row of sycamore trees in Kent, uttering continually sharp grating cries. The chafer (*Melolontha vulgaris*) was at the same time flying about in great numbers, and no doubt proved a source of attraction to them. The flight of the long-eared bat is rapid, and it makes large circles, or courses to and fro like the swallow. In the aërial evolutions of the bats, the tail and membrane extending between the two hind limbs act as a rudder, enabling the animals to turn more or less abruptly: it would seem moreover that the tail is to a certain extent a prehensile organ. Mr. Bell, who first noticed the circumstance, observes, that a small portion of the tail in most of our bats is exserted beyond the margin of the interfemoral membrane, and in ascending or descending any rough perpendicular surface this little caudal finger hooks upon such projections as occur, so as to add to the creature's security. When a bat traverses the wires of a cage this action of the tail is particularly conspicuous.

White observes that it is a common notion that bats will descend chimneys "and gnaw men's bacon," and adds that the story is by no means improbable, as a tame bat did not refuse raw flesh, though insects seemed to be most acceptable. The common bat often enters larders, and has been seen clinging to a joint of meat in the act of making a hearty meal upon it. Of this circumstance we are assured by Mr. Bell.

That bats can be tamed is a remarkable fact; but various species differ in the degrees of their docility. Mr. White's bat, a Pipistrelle, was so tame, that it would take flies out of a person's hand. "If you gave it anything to eat it brought its wings round before the mouth, hovering, and hiding its head in the manner of birds of prey when they feed. The adroitness it showed in shearing off the wings of the flies, which were always rejected, was worthy of observation, and pleased me much."

In the 'Proceedings of the Zoological Society' for 1834 we find the following interesting details relative to the habits of the Pipistrelle in captivity, by Mr. G. Daniell. In July, 1833, he received five specimens of this little bat from Elvetham, Hampshire; all were females, and pregnant. "They had been kept in a tin powder-canister for several days, and on being turned loose into a common packing-case with a few strips of deal nailed over it to form a cage, they exhibited much activity, progressing rapidly along the bottom of the box, ascending the bars to the top, and then throwing themselves off as if endeavouring to fly. They ate flies when offered to them, seizing them with the greatest eagerness, and devouring them greedily, all of them congregating together at the end of the box at which they were fed, crawling over, snapping at, and biting each other, at the same time uttering a grating kind of squeak. Cooked meat was next presented to them, and rejected; but raw beef was eaten by them with avidity, and with an evident preference for such pieces as had been moistened with water. This answered a double purpose: the weather being warm, numbers of blue-bottle flies (*Musca vomitoria*, Linn.) were attracted by the meat, and on approaching within range of the bat's wings were struck down by their action, the animal itself falling at the same moment with all its membranes expanded and cowering over the prostrate fly, with its head thrust under, in order to secure its prey. When the head was again drawn forth, the membranes were immediately closed, and the fly was observed to be invariably taken by the head. Mastication appeared to be a laboured occupation, consisting of a succession of eager bites or snaps, the sucking process (if it may be so termed) by which the insect was drawn into the mouth being much assisted by the looseness of the lips. Several minutes were employed in devouring a large fly. In the first instance the flies were eaten entire, but Mr. Daniell afterwards observed detached wings in the bottom of the box. These, however, he never saw rejected, and he is inclined to think that they are generally swallowed. A slice of beef attached to the side of the box was found not only to save trouble in feeding, but also, by attracting the flies, to afford good sport in observing the animals obtain their food by this new kind of bat-fowling. Their olfactory nerves appear to be very acutely sensible. When hanging by their posterior extremities and attached to one of the bars in front of the cage, a small piece of beef at a little distance from their noses would remain unnoticed; but when a fly was placed in the same situation, they would instantly begin snapping at it. The beef they would eat when hungry, but they never refused a fly. In the daytime they often clustered together in a corner, but towards the evening they became very lively, and gave rapid utterance to their harsh grating notes. One of them died on the fifth day after they came into Mr. Daniell's possession, two on the fourteenth, the fourth survived until the eighteenth, and the fifth until the nineteenth day." Each was found to contain a single young one. On the 16th of May, 1834, the same gentleman procured five specimens of the Noctule bat, four females and a male. The latter, which died in two days, was very impatient of confinement, restless and savage, snapping at the females and breaking his teeth in his attempts to escape by biting the wires of the cage. He constantly rejected food. The females were also at first sulky, but in about two days began to eat, preferring small bits of beef in preference to flies, beetles, or gentles. In the course of a few days three of these died, each found to be pregnant with a single offspring. The survivor lived for more than a month, and fed in preference upon the hearts and livers of fowls: she rejected large flies, but partially devoured one or two chafers (*Melolontha vulgaris*). In taking food, it was remarked that the wings were not thrown forward as in the Pipistrelle, the food being seized with an action similar to that of a dog. The water that drained from the food was lapped, but the Noctule did not raise its head in drinking as the Pipistrelle was observed to do. This Noctule took great pains in cleansing herself; she used the hinder limbs as combs, parting the hair on either side from head to tail, and forming a straight line down the middle of the back. The membrane of the wings was cleaned by the creature's nose, which it forced through

the folds so as to expand them. During her captivity she brought forth a single offspring perfectly destitute of hair and blind: this she wrapped up so closely as to prevent any observation being made. In the evening of the day after giving birth to her offspring she died. But the young one was alive, and attached to the teat of the mother; whence it was removed, wrapped in warm flannel, and fed with milk, which it took from a sponge. It survived eight days, at which time its eyes had not opened, and it had acquired very little hair. The long-eared bat seems to be far more docile than the Noctule. In captivity this elegant species is confident and familiar, very careful in cleaning its fur, and enjoying to gambol and play with others of its species, pretending to bite as we see dogs do when in good-humoured sport. Mr. Bell informs us that Mr. James Sowerby possessed a long-eared bat, which when at liberty in the parlour would come to the hand of those who held a fly towards it, and take the insect without hesitation. "If the insect were held between the lips, the bat would then settle on its young patron's cheek, and take the fly with great gentleness from the mouth; and so far was this familiarity carried, that when either of my young friends made a humming noise with the mouth in imitation of an insect, the bat would search about the lips for the promised dainty."

The Barbastelle (*Vespertilio Barbastellus*, Linn.) is timid and restless, and very impatient of confinement. This bat seems to become torpid more readily than most of our British bats, and also more completely so. The reddish-grey bat (*Vespertilio Nattereri*) was found by Mr. Bell to be very familiar and confiding, readily taking food from the hand; while the whiskered bat (*V. mystacinus*) is timid and restless, and, refusing food, soon dies after its capture. The Barbastelle, the long-eared bat, and the two last mentioned, often hybernate in caverns. Mr. Bell's specimens were found with others in a large chalk cavern in Kent excavated at the bottom of a shaft seventy feet deep.

With regard to the senses possessed by these interesting animals, those of smell and hearing are, as might be expected from the development of their respective organs, wonderfully acute. Connected with the refinement of these senses, we often find, as in the horse-shoe bat, the nose furnished with a membranous foliation of most delicate structure and complex in its arrangement; or, as in the long-eared bat, the external membranous ears largely expanded, having furrows and an inner reduplication, and capable of being folded down. The sight also is quick, and the position of the eyes, which are small, but bright, is favourable for the chase and accurate seizure of insects during rapid flight.

There is a singular property with which the bat is endowed, too remarkable and curious to be passed altogether unnoticed. The wings of these creatures consist, as we have seen, of a delicate and nearly naked membrane of vast amplitude considering the size of the body; but besides this, the nose is in some furnished with a membranous foliation, and in others the external membranous ears are enormously developed. Now these membranous tissues have their sensibility so high, that something like a new sense thereby accrues, as if in aid of that of sight. The modified impressions which the air in quiescence, or in motion, however slight, communicates; the tremulous jar of its currents, its temperature, the indescribable condition of such portions of air as are in contact with different bodies, are all apparently appreciated by the bat. If the eyes of a bat be covered up, nay, if it be even cruelly deprived of sight, it will pursue its course about a room with a thousand obstacles in its way, avoiding them all, neither dashing against a wall nor flying foul of the smallest thing, but threading its way with the utmost precision and quickness, and passing adroitly through apertures, or the interspaces of threads placed purposely across the apartment. This endowment, which almost exceeds belief, has been abundantly demonstrated by the experiments of Spallanzani and others: it is the sense of touch refined to the highest and most exquisite degree of perfection. Thus are the bats aërial in feeling as in habits.

Full, then, of interest is the history of our British Bats, of which we have selected a few details. To watch their ways and actions, what time evening assumes "her gradual dusky veil," when the silence of the tranquil scene is unbroken, save by their sharp reiterated cry, the churr of the goatsucker, and drowsy hum of the shard-borne beetle, is alike pleasing to the contemplative man and the naturalist.

THE PRIVILEGES AND LIABILITIES OF BRITISH SHIPPING.

ACCUSTOMED as we are to the use of articles of foreign produce, and conscious as we may be of the vast maritime arrangements involved in the importation of such articles into England, there are yet probably few, unconnected commercially with the subject, who bestow much thought on the privileges conceded to English shipping, ship-owners, and commanders, in this respect. The tea, the sugar, the hemp, the timber, the wine, which find their way to England, must obviously do so in ships belonging either to British or to foreign ship-owners; and the determination of the ratio in which this freighting privilege shall be divided has led to laws and regulations which merit a little attention.

Mr. M'Culloch states that so long ago as the reign of Henry VII. a law existed whereby the importation of certain commodities was prohibited, unless imported in ships belonging to British owners and manned by British seamen. In the early part of the reign of Elizabeth foreign ships were excluded from our fisheries and coasting-trade. In the time of the Commonwealth foreign ships, belonging to whatever nation, were prohibited from trading with the plantations in America, without having previously obtained a licence. These however were minor regulations, quite eclipsed by a law passed in 1651, which gave a tinge to the maritime transactions of England from that time down to a comparatively recent period. England was at that period in bitter enmity with Holland, whose ship-owners were the great carriers for nearly all the nations of Europe; and it was to crush this power in a rival nation that the republican parliament passed the law in question. By the terms of this enactment, no goods or commodities whatever, grown, produced, or manufactured in Asia, Africa, or America, could be imported into England, Ireland, or the Colonies, except in ships belonging to English subjects, and of which the master and the greater number of the crew were also English. The import-trade of three out of the four quarters of the globe having been thus secured to the English ship-owners, the act proceeded to secure to them as much as possible of the European trade; and for this purpose it declared that no commodities of any European country should be imported into England, except by English ships, or by ships belonging to the countries where the exported goods were produced. This latter clause was intended expressly to act against the Dutch; for scarcely any of their produce came at that time to England, the merchant-ships of Holland having more frequently come to this country in the capacity of carriers for other countries. By the new law, any commodities imported from France, Spain, or Italy, for example, were to be brought either in English ships, or in French, Spanish,

or Italian ships, as the case might be; thus excluding the carrying ships of Holland.

Shortly afterwards the prohibition was relaxed to this extent: that while Russian and Turkish produce, as well as timber, grain, tar, hemp, flax, wine, spirits, sugar, and a few other articles, were to remain subject to the above regulations, all other commodities might be imported in any ships whatever. But this change was of little importance, for all the most important articles came under the "exceptions." In the reign of Charles II. the national animosity between England and Holland led to an enactment of extreme rigour, carrying the maritime exclusiveness to an extravagant extent; for it prohibited the importation from Holland, the Netherlands, and Germany, of a long list of commodities, under any circumstances, or in any vessels, whether British or foreign, under the penalty of seizure and confiscation of the ships and goods. This last-mentioned act was virtually one of exclusion rather than of commercial regulation; but it had for many years considerable influence on foreign ship-owners.

It was not until a very recent period (1833) that these laws were placed upon such a footing as to allow to foreign ships a privilege at all analogous to that enjoyed by English; and this change was only wrought when experience showed that other nations were about to retaliate. It may be flattering to the national vanity to know that British ships and British seamen are employed to bring foreign produce to our shore; but the maintenance of an analogous principle by other countries would be a perfectly just retaliation. The Americans in 1787, and the Northern powers of Europe at a later period, adopted, or proposed to adopt, measures avowedly copied from the navigation laws of England; so that if timely concessions had not been made, the English ship-owners would have severely suffered.

The regulations which came into force nine years ago, respecting the relative privileges of British and foreign shipping in importing foreign produce into England, involve the following as the chief points:—A list of what are called "enumerated articles" includes those which must be imported under one of these three circumstances: in British ships; in ships of the country where the goods were produced; or in ships of the country from whence the goods were shipped. This list includes masts, timber, boards, tar, tallow, hemp, flax, currants, raisins, figs, prunes, olive oil, corn or grain, wine, brandy, tobacco, wool, shumac, madder, madder-roots, barilla, brimstone, oak-bark, cork, oranges, lemon, linseed, rape-seed, and clover-seed. Goods which are the produce or growth or manufacture of Asia, Africa, or America, are not to be imported into England from any European country, with some few exceptions: this evidently has relation to the employment of English shipping, in preference to foreign European shipping, in bringing produce from distant countries to England. All goods imported from the Channel Islands must freight British ships only. All exports to our own colonies are to be in British ships; as likewise goods carried coastwise from one part of the British Islands to another, or from any one of our colonies to another. Lastly, any goods taken to one of our colonies in a foreign ship must be so taken only in a ship of the country where the goods were produced, or from whence they were exported.

As many advantages are thus given to English shipping over those of foreign countries, it may be asked how these British ships may be always able to designate themselves and to maintain their identity as such. This is effected by a remarkable system of *registration* maintained through the medium of the Custom-House officers. Vessels which are claimed by their owners to be placed on the registry, must be the property of the British sovereign's subjects, and must have been built in the British dominions or dependencies, or have been prize vessels legally condemned. The collectors and comptrollers of the Customs are generally the parties who register the shipping, and who grant certificates of registry to the owners. So severe are the laws in this respect, that if any ship were to exercise the privileges of a British ship before the owners have obtained a certificate of registry, the ship with the whole of its contents would become forfeited to the crown, and might be seized by the officers of the Customs. In order to reduce the immense mass of shipping within something like navigable order, every registered ship is supposed to "belong" to some particular British port, the Customs' officers of which grant the requisite certificate, and make the requisite entry in the register. The port to which a ship is said to belong is generally the nearest one to the residence of the chief owner of the vessel. The proprietorship of every ship, if there be more than one owner, is supposed to be divided into sixty-four equal parts or shares, which may be held by few or many shareholders, not exceeding thirty-two; and not only must every shareholder's name be entered on the certificate of registry, but if any transfer of shares should take place, the registry must be re-effected. No person, with some few exceptions, who has taken the oath of allegiance to a foreign power can become the owner of a British ship.

In order that the registry may be a *bonâ fide* one, it is necessary that the kind and quality of the ship be recorded; and in order to effect this, every ship is thoroughly examined and surveyed before registry by certain Customs' officers and shipwrights, to determine the tonnage and the general character of the ship. The ship is registered by a particular name, which is not to be afterwards changed. If the vessel after being registered undergoes any material alterations, it must be registered anew. If the vessel undergoes repairs in a foreign country exceeding the amount of 1*l.* per ton burden, it ceases to be a British ship, unless the owners or commander can show that such repairs were absolutely necessary at the time for the safe completion of the voyage.

It will thus be perceived that a great many conditions must be fulfilled before a vessel can rank as a British ship, and share in the privileges granted to British shipping. But besides the vessel itself, there are other matters to be attended to before a ship can engage in commerce as a British ship. For instance, every such ship must be navigated during the whole of every voyage, whether with a cargo or in ballast, in every part of the world, by a master who is a British subject, and by a crew of which three-fourths at least are British seamen. If the ship is employed in the coasting trade or in fishing on the British coasts, the whole of the crew must be British seamen. If on any occasion a registered ship is navigated by more than the prescribed number of foreign seamen, a penalty of 10*l.* for each one in excess is incurred.

These regulations render necessary a determination of the question, not only what constitutes a British ship, but who are British seamen? A British seaman, in the legal acceptation of the term, must be a natural-born subject of the British sovereign, or must have been naturalized by act of parliament, or must have been made a denizen, or have become a British subject by the conquest or cession of some newly-acquired territory, or (being a foreigner) must have served on board an English ship of war, in time of war, for the space of three years. Any of these may obtain the privileges, such as they are, of British seamen, and are

protected by certain laws respecting hiring, payment of wages, and the conduct of their officers.

A committee of the House of Commons, appointed in 1836 to inquire into the causes of the numerous shipwrecks which occurred about that time, suggested, in reference to the registration of ships and seamen, that a 'Mercantile Marine Board,' appointed for the control of merchant-ships generally, should perfect "a system of classification of ships, to the utmost attainable point of accurately defining, by such classification, the real state and condition of every ship registered;"—should "collect information as to the best materials for building, surveying, fitting-out, equipping, loading, and furnishing with the requisite supply of men, provisions, water, and boats, all ships built and registered in the United Kingdom;"—should form certain standards of qualification in seamanship, navigation, and nautical astronomy, to be attained by officers and masters before receiving licences of appointment in the merchant-service;—and should form registry-offices for recording the name, age, capacity, and character of British merchant-seamen, with a view to advance the praiseworthy and set aside the unfitting. These recommendations have not yet been acted on. Meanwhile the "underwriters," or insurers of ships, have adopted a system of registration for their own purposes well worthy of our notice in a future article.

Usefulness of Moles.—Our Correspondent, whose communication on the utility of moles in destroying the wire-worm and other grubs which feed on the plants of the young corn will be found in No. 618, has furnished the following additional information on this subject:—"I had," he says, "a small field of rye-grass and clover, one end of which, early in the spring, was like a honeycomb from workings of moles. A farmer would have destroyed the workers; I, on the contrary, protected them, and not one was destroyed: but I took care to level the mould which they threw up almost every day; and now to the practical result. I lately cut my crop, which was a very good one generally; but at the end, where the moles worked, the crop was better than in any other part; and now not a mole can be discovered in the field. They did the work designed to them by a wise Providence—ate up all the grubs which would have destroyed my young plants, and then took their departure to some neighbour's field, where doubtless they will be trapped. Another remark as regards birds: for example, as to those small birds which are seen upon fruit-trees, such as the titmouse: the vulgar opinion is that they destroy the buds, and thus injure or ruin the crop. Now I never suffer one of that kind of birds to be killed, but rejoice to see them, and protect them; and I would rather see a superabundance of sparrows than none at all, even by way of profit; and the consequence is, that I have very frequently had a crop of fruit when my neighbours have had none. Again, as you pass cottage-gardens, you very frequently see the leaves eaten off the cabbages and gooseberry and currant bushes growing near the doors by caterpillars; whilst cabbages in the fields and fruit-trees at a distance from houses are flourishing and left untouched. Here again the same cause is in operation; the small birds, which would have destroyed the insects, are driven from the doors, but perform their natural operations at a distance from them."

Autumnal Travelling in Siberia.—We made our first journey *en traineau* here; and bad enough it was in that way—on wheels it would have been impossible. The road was very mountainous, and lay through forests for eight or ten versts together, where the snow was drifted to the height of many feet; through which we had to force our way, it not being yet sufficiently hard to resist the horses' feet. In the rapid descents we constantly rolled over and over; and three horses to a light *traineau* had the greatest difficulty in getting up the long steep hills of snow, where there was no solid footing for them. What we should have done with our carriage on such roads we know not; and we had still a long journey before us before we should come to any town where we could leave it till our return from the far East, and to take it on the whole way was out of the question. The next day a council of war was held; when it was decided we should go on to Barnaoul on wheels, a distance of two hundred and eighty versts: but the road was represented as good, and we were told we should find much snow, it being mostly over a dead flat. Accordingly the carriage was fortified with very strong ashen shafts, which were fixed all round it, so as to force a passage through the snow in the case of need; and thus we started for Barnaoul. Bad as our journey had been for some time past, it was evident we had not reached the maximum, and that every day the roads would be worse, till the snow had settled down into solidity, which, in parts where there is little communication, requires some time. We had generally ten or twelve horses the whole of this journey, and did not with all average above five versts an hour. Our first stage was mountainous; but after that the steppes began again, with driving snow and wind, almost amounting to what is called in this country a *buran*, or whirlwind, which is often fatal to travellers if accompanied with snow in any quantity. Having tried the effects of fire, water, and air, under their most fearful forms, we are inclined to give the preeminence in point of horror to the latter. A *buran* which overtakes you in a forest is less formidable, because you cannot well get out of the right track, and the only danger is being buried alive in the snow. But in an open steppe country, when it is very violent, the snow which is falling becomes whirled round, and mixed with that which the wind raises from the ground; so that in broad daylight the driver cannot see an inch before him, and does not know whether he is going to the right or to the left. Many fatal accidents occur in this way; carriages being rolled down precipices, or men and horses frozen to death in the drifted snow, which naturally collects round the only object which interrupts its course for miles and miles.—*Cottrell's Recollections of Siberia.*

Importance of Cities.—If the history of cities and of their influence on their respective territories be deducted from the history of humanity, the narrative remaining would be, as we suspect, of no very attractive description. In such case, the kind of picture which human society must everywhere have presented would be such as we see in the condition, from the earliest time, of the wandering hordes of Mongolians and Tartars, spread over the vast flats of Central Asia. In those regions scarcely anything has been "made" by man. But this most happy circumstance, as it seems to be accounted—this total absence of anything reminding you of human skill and industry—has never been found to realize our poetic ideas of pastoral beauty and innocence. It has called forth enough of the squalid and of the ferocious, but little of the refined, the powerful, or the generous. If anything be certain, it would seem to be certain that man is constituted to realize his destiny from his association with man, more than from any contact with places. The great agency in calling forth his capabilities, whether for good or for evil, is that of his fellows. The picturesque, accordingly, may be with the country, but the intellectual, speaking generally, must be with the town. Agriculture may possess its science, and the farmer, as well as the landowner, may not be devoid of intelligence; but in such connexions, the science and intelligence, in common with the nourishment of the soil, must be derived, in the main, from the studies prosecuted in cities, and from the wealth realized in the traffic of cities. If pasturage is followed by tillage, and if tillage is made to partake of the nature of a study and a science, these signs of improvement are peculiar to lands in which cities make their appearance, and they become progressive only as cities become opulent and powerful.—*Dr. Vaughan's Age of Cities.*

Fossil Trees.—During the progress of the works for reclaiming the extensive waste called White Moss, between Middleton and Failsworth, a large number of trees, of enormous magnitude, have been discovered at a depth of about six feet; some of the oaks have been nearly twelve feet in girth and forty feet in length. Several trees of the oak, fir, and yew tribe have been found to be thoroughly sound, even to the outermost part. Many of the oak-trees have proved more tough and flexible than this tree is under ordinary circumstances. A large quantity of the timber has most unquestionably been on fire. It seems that during some remote age the fossil-trees at White Moss have been burnt, for there are examples of the main shaft of these timbers having been consumed. Singular as it may appear, the trees found in this moss have invariably been met with lying in a direction either south-east or due east.